

REMARKS

Claims 1-27 are pending. Claims 16-17 and 22-23 were determined by the Examiner as being allowable and have been made independent of the other claims. Claims 12 and 22 have been amended to address Examiner's objections. Independent claims 1, 5, 11, 20, and 24 have been amended to overcome Examiner's rejections. Responses to rejections based upon these amended claims are contained in the sections below. Reconsideration of these claims as amended is kindly requested based on the following arguments.

Response Under 35 U.S.C. §102 and Traverse

Examiner has rejected independent claims 1 and 11 as being anticipated over Taylor et al. (U.S. Pat. No. 6,375,817), independent claims 1, 5, 11, and 20 as being anticipated over Liu (U.S. Pat. No. 6,533,914), independent claim 1 as being anticipated over Foret et al. (U.S. Pat. No. 6,939,452), independent claims 1, 11, and 20 as being anticipated over Mathies et al. (U.S. Pub. No. 2002/006359).

None of these references teaches all the features of the present invention, for example, loading cilia that have a pitch such that adjacent cilia cannot deflect into adjacent wells of the multi-well tray. Each of these references teaches aligning capillaries that have similar spacing as wells in a tray or other device for simultaneous loading. The benefit of having cilia with a different pitch than the pitch of adjacent wells is that they can be packed more densely into a channel device while still using a multi-well tray as a source for sample. The pitch of the multi-well tray cannot be changed because it is mandated by industry standards, i.e. SBS standard. The present invention provides loading for the cilia in sets rather than simultaneously in order to load from each well of the tray.

Taylor does not teach a multi-well tray. It teaches a microchip assembly 25 that has sample introduction channels 10 that correspond to each capillary 28. (Col. 10, line 60 – Col. 11, line 8). The capillaries have the same pitch to match the sample introductory channels and are all loaded simultaneously.

Liu teaches a sample preparation chip and separation chip with connection capillaries connecting each sample preparation channel to each injector on the separation chip (Fig. 11). The sample preparation channels have the same pitch to match the injectors on the separation chip and are all loaded simultaneously by the connection capillaries.

Foret teaches capillaries 11 of microfluidic device 12 placed in alignment with individual wells 16 of microtiter plate 14. (Fig. 1a) “The spacing between these capillaries is compatible with the spacing between of the wells in standard microtiter plates.” (Col.5, lines 8-10) The capillaries have the same pitch as the wells and are loaded simultaneously.

Mathies teaches capillaries 120 in a capillary array 107 for transferring from a microtiter dish 115 to an electrophoresis microplate 111. [0039] A spacing manifold 109 receives the capillaries and “space[s] them into any desired spatial orientation, for example for a desired second well, or array of the same.” [0039] The capillaries have the same pitch as both the microtiter dish and the microplate. The capillaries are aligned and the capillary array loads simultaneously from the microtiter plate to the microplate.

As demonstrated for each of these references, there is no teaching to provide for loading cilia that have a pitch such that adjacent cilia cannot deflect into adjacent wells of the multi-well tray by, for example, loading sets of cilia with different rows of wells. Each of the references teach capillaries with a pitch that aligns them with a microtiter plate so that they can be loaded simultaneously. Reconsideration of the claims as amended is kindly requested.

Response Under 35 U.S.C. §103(a) and Traverse

The PTO has the burden of establishing a prima facie case of obviousness. MPEP 2142.

“To establish a prima facie case of obviousness, three basic criteria must be met.

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

Second, there must be a reasonable expectation of success.

Finally, the prior art reference (or references when combines) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure." (indentation and underline added for emphasis) MPEP 2142.

Examiner has rejected independent claim 24 as being obvious over Mathies et al. (U.S. Pub. No. 2002/006359) in view of Balch et al. (U.S. Pat. No. 6,479,301).

First, the combination of these claims does not teach all the features of the present claims. As discussed above Mathies does not teach, for example, loading cilia that have a pitch such that adjacent cilia cannot deflect into adjacent wells of the multi-well tray by, for example, loading sets of cilia with different rows of wells. Furthermore, Balch does not teach the features of the present invention either. Balch teaches "capillary bundle originates in an enclosure containing discrete fluid supply chambers, such as the wells in a microtiter plate. Each capillary is inserted into a specific well, which usually contains a unique probe solution with respect to the other wells. The storage vessel can be momentarily pressurized to begin fluid flow in all of the capillaries simultaneously to prime the printer." (Col. 15, lines 48-54) Clearly, Balch teaches alignment between each capillary and each well, as well as, simultaneous transfer.

Second, there is no motivation to modify these references. Mathies and Balch teach simultaneous loading of capillary arrays by designing a capillary array that aligns with source microtiter plate. Rather, they teach away from sequential loading of cilia of the present invention, by teaching simultaneous loading.

Finally, there is no reasonable expectation of success. Mathies teaches a manifold 105 and Balch teaches a manifold (Fig. 4) that stabilize all the capillaries. Such a manifold would not permit deflection of sets of capillaries within the array.

Based upon these arguments of nonobviousness, reconsideration of the claims as amended is kindly requested.

Fee Authorization

Should any extension of time and/or fee be necessary for timely submission of this paper, such extension of time is hereby requested, and the Commissioner is hereby authorized to charge **Deposit Account No. 01-2213 (order no. 4680)**. Any deficiency or overpayment should be charged or credited to this deposit account.

Respectfully submitted,

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